

## Claims

1. A mobile telecommunications system comprising:

an IP-based GSM system;

a UMTS system; and

5 a connection connecting both said IP-based GSM system and said UMTS system to a common IP network.

10 2. The system according to Claim 1, wherein said connection comprises at least one IP-router.

3. The system according to Claim 2, wherein:

said IP-based GSM system includes a plurality of GSM system elements;

said UMTS system includes a plurality of UMTS system elements; and

15 wherein any of said plurality of GSM system elements and any of said plurality of UMTS system elements are capable of communicating with any other of said elements via said common IP-network.

20 4. The system according to Claim 1, wherein a user plane for both the GSM system and the UMTS system uses a common Media Gateway (MGW).

5. The system according to Claim 4, wherein said IP-based GSM system includes a Mobile Switching Center (MSC), at least one Base Station Controller (BSC) and at least one Radio Base Station (RBS), wherein said UMTS system includes at least one Radio Network Controller (RNC), and wherein a control plane of the MSC is terminated in an MSC server and  
5 a control plane of the RNC/BSC is terminated in a Radio Network Server (RN Server), and wherein the MSC server, the RN Server, the MGW and all RBSs are connected to the common IP network.

6. The system according to Claim 5, wherein the MSC server, the RN Server, the  
10 MGW and the RBS are all connected to said common IP network via at least one IP-router.

7. The system according to Claim 4, wherein said MGW includes transcoders, an Interworking Unit, echo cancellors and DTMF senders.

8. The system according to Claim 7, wherein said MGW is implemented as a  
15 distinct component.

9. The system according to Claim 7, wherein said MGW is implemented in two separate network elements with an A-interface therebetween..

10. The system according to Claim 1, wherein said system is incorporated in a mobile telecommunications network which comprises a plurality of said systems, and wherein each of said plurality of systems is connected via said common IP network.

5 11. The system according to Claim 1, wherein said system further includes a connection to a PSTN and wherein said system is capable of carrying compressed speech from a mobile station associated with an RBS to the PSTN.

10 12. The system according to Claim 1, wherein said system is capable of carrying compressed speech via an A-interface of said IP-based GSM system.

13. A mobile telecommunications network comprising:  
a plurality of switch sites, each of said plurality of switch sites including an IP-based GSM system and a UMTS system, and a connector to a Public Switched Telephone Network (PSTN); and  
15 a common IP network connecting all of said plurality of sites.

14. The network according to Claim 13, wherein each of said plurality of sites further includes at least one IP-router connecting the plurality of sites to said common IP network.

15. The network according to Claim 13, wherein each said IP-based GSM system includes a plurality of GSM system elements; each said UMTS system includes a plurality of UMTS system elements; and wherein any of said plurality of GSM system elements and any of said plurality of UMTS system elements are capable of communicating with any other of said elements in said network via said common IP-network.

16. The network according to Claim 15, wherein a user plane for each GSM system and each UMTS system is a common Media Gateway (MGW).

17. The network according to Claim 16 wherein the IP-based GSM system at each site includes a Mobile Switching Center (MSC), at least one Base Station Controller (BSC) and at least one Radio Base Station (RBS), wherein the UMTS system at each site includes at least one Radio Network Controller (RNC), and wherein a control plane of the MSC is terminated in an MSC server, and a control plane of the RNC/BSC is terminated in a Radio Network Server (RN Server), and wherein the MSC server, the RN Server, the MGW and all RBSs are connected to the common IP network.

18. The network according to Claim 17 wherein each of said IP-based GSM system and UMTS system is capable of carrying compressed speech via an A-interface of said IP-based GSM system or an Iu interface of said UMTS system.